CHAPTER SIX
GRAPHS:

Some basic graphs:

Before a graph can be plotted, we must first construct a table with reference to the equation of the given graph.

- A few values of x are selected and for each, the corresponding y value is computed.
- These two corresponding values i.e. the x and the y values are then plotted on a graph paper.
- There are certain basic graphs which students must be familiar with and be capable of plotting.
- The way or manner of plotting some of these graphs will be illustrated in the following questions:

Q1). Using values of x from -2 to 2, plot the following graphs:

1) $y = 2x$. 2). $y + 4x = 0$.

3). $y = \frac{1x}{2}$. 4) $y = -x/2$.

5) $y = 2x + 1$. 6) $y + 4x + 2 = 0$.

Soln.

(1) $y = 2x$

X	- 2	- 1	0	1	2
Y	- 4	- 2	0	2	4

(a) If x = -2
y = 2x
= > y = 2(-2) = -4
=>y = -4

(b) If x = -1
y = 2x
=> y = 2 (-1)
=> y = -2

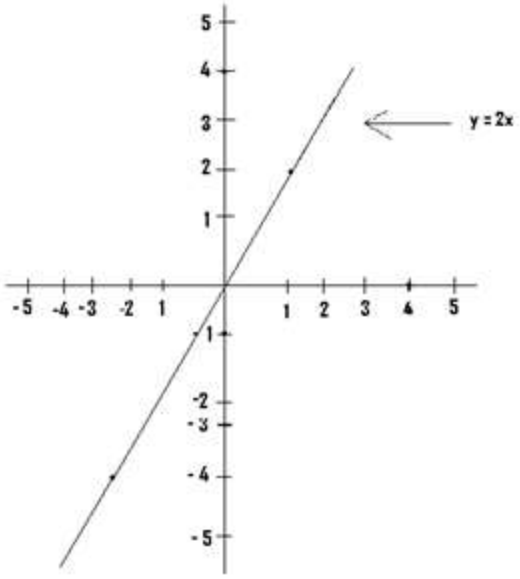
© If x= 0
y = 2x

(d) If x = 1
y = 2x

=> y = 2(0) = 0
=> y = 0

=> y = 2(1) = 2
=> y = 2

(e) If x = 2
y = 2x
=> y = 2(2)
=> y = 4



N/B: Before plotting any graph you, must first make sure y is the subject of the given equation. If not, then make y the subject.
(2) From y + 4x = 0, => y = 0-4x => y = -4x

y = - 4x

X	-2	-1	0	1	2
Y	8	4	0	s- 4	-8

(a) If x = -2
y = - 4x
=> y = - 4 (-2)
=> y = 8

(b) If x = -1
=> y = - 4(-1)
=> y = 4

(c) If x = 0

y = - 4x

=> y = - 4 (0)

=> y = 0

(d) If x = 1

y = - 4x

=> y = - 4(1) = - 4

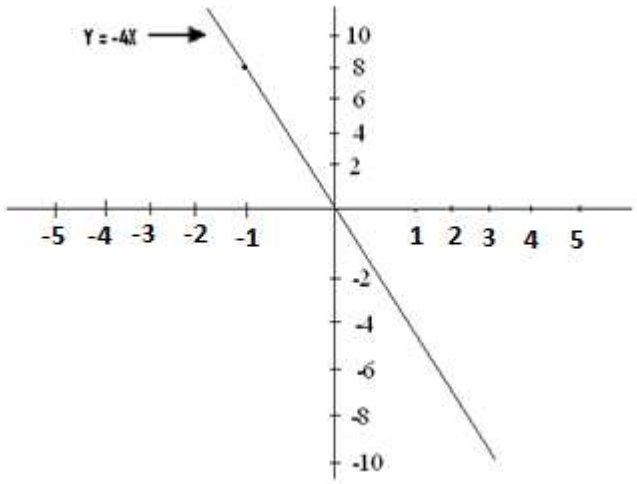
=> y = - 4

(e) If x = 2

y = - 4x

=> y = - 4(2) = - 8

=> y = - 8



1. y = $\frac{1x}{2}$ { or y = x/2}

3) $,y = \frac{x}{2}$ $or\ y = \frac{1x}{2}$

x	-2	-1	0	1	2
y	-1	-0.5	0	0.5	1

(a) If x = -2

y = $\frac{1x}{2}$ = ½(-2)

(b) If x = -1

y = $\frac{1x}{2}$= ½(-1)

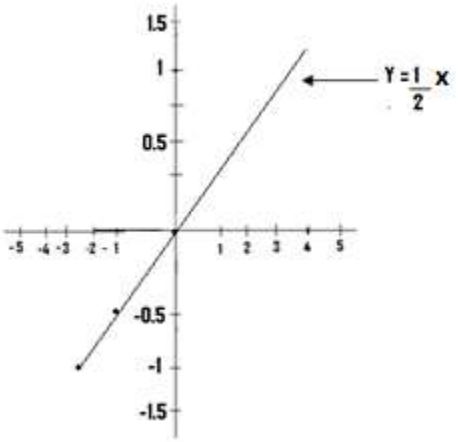
=> y = -2/2
. . => y = -1

=> y = -1/2 = - 0.5
=> y = - 0.5

(c) If x = 0
$y = \frac{1x}{2}$= ½(0)
=> y = 0/2
=> y = 0

(d) If x = 1
$y = \frac{1x}{2}$= ½(1)
=> y = 1/2
=> y = 0.5

X	-2	-1	0	1	2
Y	1	0.5	0	- 0.5	-1



N/B: In the plotting of a graph, the interval used on one particular axis (i.e. the difference between one number and the next) must be the same.

- For a particular graph, the interval used on the x-axis must be the same.
- But the scale used on the x-axis can be different from that used on the y-axis.

4) y = -x/2. or $y = \frac{-x}{2}$

1) If x = -2

y = -x/2 = - (-2)/2
➔ y = 2/2 = 1

2) If x = -1

y = -x/ 2 = - (-1)/2
=> y = ½ = 0.5

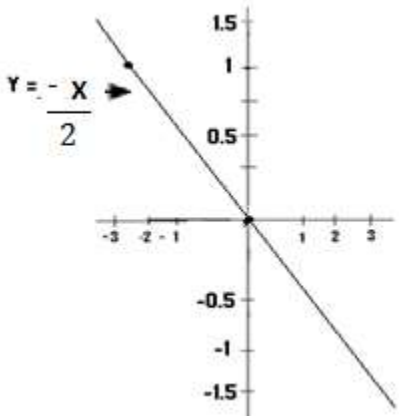
3) If x = 0
y = -x/2 = - (0)/2 = 0
=> y = 0.

4) If x = 1
y = -x/ 2 = - (1)/2
=> y = -1/2 = - 0.5

5) If x = 2

y = -x/2 = - (2)/2

=> y = -1



5)

y = 2x + 1

X	-2	-1	0	1	2
Y	-3	-1	1	3	5

1) If x = -2

y = 2x + 1

=> y = 2(-2) + 1

=> y = - 4 + 1 = -3.

2) If x = -1

y = 2x + 1

=> y = 2(-1) + 1= -2+1

=> y = -1.

3) If x = 0

y = 2x + 1

=> y = 2(0) +1

=> y = 0+1 =1.

4) If x = 1

y = 2x + 1

=> y = 2(1) + 1 = 2 + 1 = 3

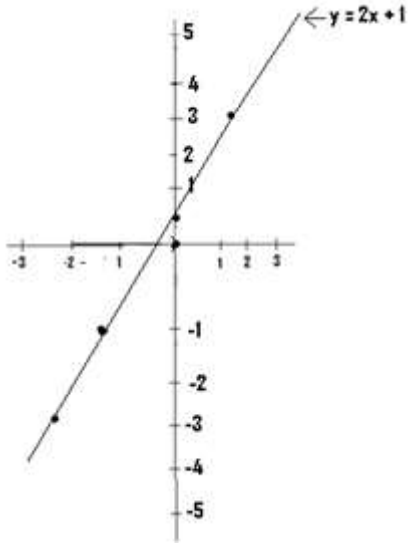
=> y = 3.

5) If x = 2

y = 2x + 1

=> y = 2(2) + 1

=> y = 5.


y = 2x + 1
5
4
3
2
1
-1
-2
-3
-4
-5
-3
-2
-1
1
2
3